

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1-24 (Canceled)

25. (New) A method of removing metal ions from a medium comprising the step of contacting the medium with an effective amount of a phosphorus containing polymer.

26. (New) The method as claimed in claim 25, wherein the phosphorus containing polymer has a phosphonate or phosphinate end cap.

27. (New) The method as claimed in claim 26, wherein the end cap polymer is of formula (I):



Wherein: X is H or an alkali metal, alkaline earth, a polyvalent metal, ammonium or an organic base, and

R is a polymeric chain comprising between 1 and 100,000 groups, said group or groups being derived from at least one unsaturated compound wherein the multiple bond is activated chemically by an adjacent electron withdrawing group, and Y and Z are each hydrogen, a PO_3A_2 , SO_3A or CO_2A group wherein A is hydrogen, an alkyl moiety or an aryl moiety.

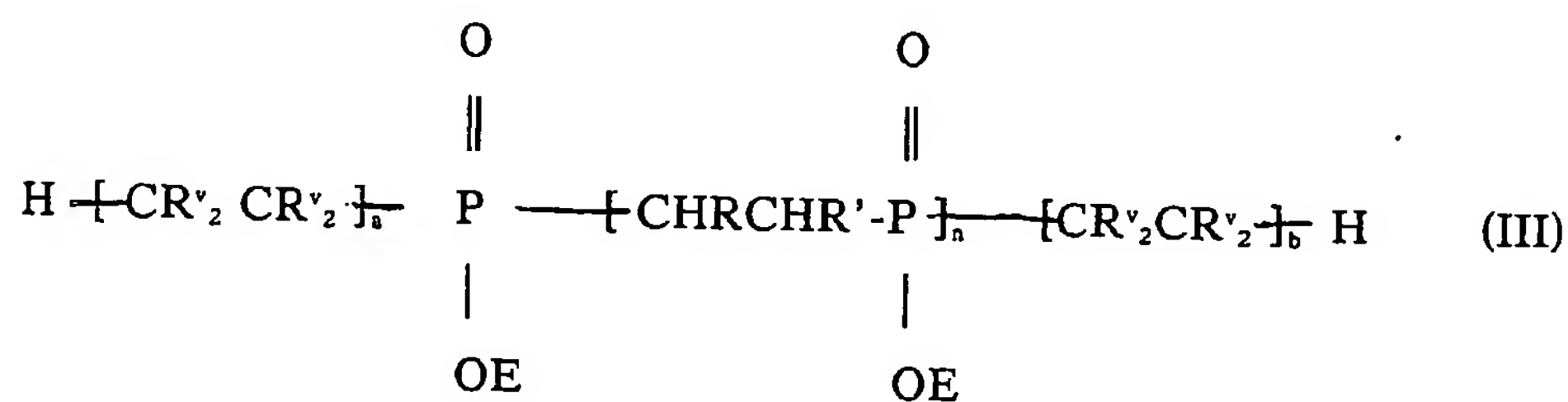
28. (New) The method as claimed in claim 27, wherein R is a polymer of acrylic acid.

29. (New) The method as claimed in claim 27, wherein R is a polymer of a

carboxylic or sulphonic acid selected from the group consisting of methacrylic acid, maleic acid, vinyl sulphonic acid and 2-acrylamido-2-methylpropane sulphonic acid.

30. (New) The method as claimed in claim 27, wherein R is copolymer of VPA (vinyl phosphoric acid) and VDPA (vinyl diphosphonic acid).

31. (New) The method as claimed in claim 25, wherein the phosphorus containing polymer is a telomer of formula (III):



wherein E is hydrogen or a cation, R and R' are each independently selected from the group consisting of hydrogen, hydroxyl, carboxyl, alkyl, aryl, alkaryl, hydroxy-substituted alkyl, aryl or alkaryl and carboxy-substituted alkyl, aryl or alkaryl, provided that R and R' together have a total of less than 23 carbon atoms, at least one R_v in each monomer unit is selected from the group consisting of hydroxy, carboxy, sulfo, phosphono, amide, aceto, aryl and halogen; each other R_v is independently selected from the group consisting of hydrogen, C₁₋₄ alkyl, carboxyl, sulfo, phosphono, hydroxyl groups, carboxy-substituted, sulfo-substituted, phosphono-substituted and hydroxy-substituted C₁₋₄ alkyl groups; (a+b) is in the range 5 to 200 and n is greater than 1.

32. (New) The method as claimed in claim 25, wherein the medium is crude oil.
33. (New) The method as claimed in claim 25, wherein the medium is a mixture, in any proportion, of hydrocarbons containing naphthenic or fatty acids with water.
34. (New) The method as claimed in claim 33, wherein the water is injection water, reservoir water (connate water) water from oil fields, or water from any system where water contacts or is in contact with crude oil or naphthenic acid or fatty acid containing fluids.
35. (New) The method as claimed in claim 25, wherein the medium is selected from process soaps and cleaning formulations used in personal home care applications.
36. (New) The method as claimed in claim 25, wherein the metal ions are selected from Mg^{2+} , Ca^{2+} , Na^{+} , Fe^{2+}/Fe^{3+} .